

CLAIMS

1. A process for preparing a metal salt of a perfluorinated polyether having at least one carboxylic acid end group, comprising:

treating a fluorinated polyether having at least one carboxylic acid end group with a metal salt of a volatile organic acid under reaction conditions effective to convert all carboxylic acid end groups to the salt form and volatilize the resulting organic acid, thus providing a reaction product comprising a salt of the metal and the fluorinated polyether.

2. The process of claim 1, wherein the fluorinated polyether is a perfluorinated polyether.

3. The process of claim 2, wherein the perfluorinated polyether is comprised of monomer units having the structure $-\text{CF}_2-\text{O}-$, $-\text{CF}_2-\text{CF}_2-\text{O}-$, $-\text{CF}(\text{CF}_3)-\text{O}-$, $-\text{CF}(\text{CF}_3)-\text{CF}_2-\text{O}-$, or a combination thereof.

4. The process of claim 3, wherein the perfluorinated polyether is a linear polymer.

5. The process of claim 4, wherein the perfluorinated polyether has a single carboxylic acid end group.
 6. The process of claim 4, wherein the perfluorinated polyether has two carboxylic acid end groups.
 7. The process of claim 2, wherein the metal salt is an alkali metal salt.
 8. The process of claim 7, wherein the alkali metal salt is a sodium salt.
 9. The process of claim 2, wherein the volatile organic acid is acetic acid.
 10. The process of claim 7, wherein the volatile organic acid is acetic acid.
 11. The process of claim 8, wherein the volatile organic acid is acetic acid.
 12. The process of claim 2, wherein the reaction conditions comprise heating a mixture of the fluorinated polyether and the metal salt of a volatile organic acid at a temperature of at least about 130 °C for at least 48 hours.
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13. The process of claim 2, further comprising isolating the reaction product.

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13. The process of claim 12, wherein the product is isolated by extraction.

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14. The process of claim 13, wherein the extraction employs a fluorinated alkane solvent and a lower alkanol.

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15. The process of claim 14, wherein the extraction employs perfluorohexane and methanol.

17

16. The process of claim 2, wherein the perfluorinated polyether has a number average molecular weight in the range of approximately 500 to 10,000.

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17. The process of claim 16, wherein the perfluorinated polyether has a number average molecular weight in the range of approximately 1000 to 5,000.

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18. The process of claim 17, wherein the perfluorinated polyether has a number average molecular weight in the range of approximately 2500 to 3500.

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~~19~~. A metal salt of a perfluorinated polyether having at least one carboxylic acid end group, prepared by the process of claim 1.

21

~~20~~. A metal salt of a perfluorinated polyether having at least one carboxylic acid end group, prepared by the process of claim 2.